contains the maps folded, and will suit either a school-boy or a family of small geographical requirements. The Complete Atlas differs from the Family one in having classical maps and a large number of plans of cities; the modern maps being pretty much the same in both; both also contain maps of the stars. Sir Roderick Murchison's geological map of England and Wales, however, is to be found in the Family Atlas only. All of them contain a most valuable index of places, so that we have on the whole a very practical gradation to suit all requirements, the *quality* being the same but the *quantity* varying.

There is one very admirable point in the arrangement of the Complete Atlas which at the same time reminds us that it is not so complete as we are sure Mr. Stanford will make some edition of it in the more or less remote future. Side by side with the modern (politically divided) map we have the ancient (politically divided) map of the same area, and in this point the Complete Atlas will commend itself to all scholars; but we miss very much indeed the physical maps of the larger areas, and in the interests of physical geography we feel bound to insist strongly on this point, because we are convinced that the importance of such maps to those who want a large atlas is becoming so great that it will not be borne that they shall be relegated to a separate volume.

By many, and those especially who are content with the modern world, the Family Atlas will commend itself by its index-like arrangement, by which the names of all the maps are visible down the side, and the sides of the foremost maps being cut away, any map may be at once turned to.

This much premised, we may state that we have examined the maps and plans very carefully, and find them as a rule as good as any English maps extant, and honestly brought down to date. Mr. Stanford deserves great credit for the admirable and careful way in which this has been done, and we say this the more strongly because we know the immense labour and expense involved in altering map plates from time to time. Of course, in some cases, it has been simply impossible to alter the plates, the alterations have been too great. Take for instance the plans of New York, extending to Forty-second Street only, and Boston, in which the waste space shown in the map, west of the public garden, is now covered with houses. In other cases all the care has been displayed in the detail map, the general map having escaped revision, or *vice versa; e.g.*, in the map of British North America, Russian America is retained, while in the general map it is correctly omitted; in the general map of Canada and the United States the chief town of Iowa is shown as Iowa City, while, in the detail map, Des Moines is correctly given. We could have wished too to see Patagonia, a time-honoured name, divided, as it really is, between the Argentine Republic and Chili; and we have an idea, too, that by an Order in Council, or some such terrible enactment, the "improper" name of Van Dieman's Land has been altered to Tasmania! We notice these points, not as blemishes by any means, but as indications of a more or less minute revision which we are sure Mr. Stanford would have otherwise undertaken, of a collection of maps of which English geography may be proud.

OUR BOOK SHELF

Birds of Marlborough, being a Contribution to the Ornithology of the District. By Everard F. im Thurn. (12mo. pp. 117. Marlborough and London, 1870.)

THIS unpretending little book affords an additional piece of evidence, if more were needed, that science in some form or other is making its way into our schools. A few years ago it was well remarked by one who had given no small attention to the matter, that the relations of the universities and public schools, as regarded science, formed a "vicious circle"—on the one hand the public schools demurred to its encouragement because it did not "pay" their pupils when they reached the university, and on the other the universities hesitated about rewarding scientific studies because they were pursued by intellects comparatively inferior to those which were devoted to the older branches of learning. This state of things clearly admitted of a remedy; either great power of itself could make the first step; but it was certainly the duty of the universities to take the lead in moving. It must depend on them, and on them alone, to alter and improve the whole higher education of our countrymen, for the curriculum of any public school is almost exclusively prepared with reference to the requirements of the universities and the rewards for proficiency that they offer.* They have but to declare that their emoluments and privileges are accessible to excellence in every branch of human knowledge, instead of confining these encouragements to some very few alone, and leave the public schools to respond to the call. With skilful gardeners these nurseries will speedily grow the plants required; the germs are already there, and under the sunny smiles of pedagogic favour and the golden rain of prizes, vigorous saplings will be transplanted to the Groves of Academe, there to hold their heads as high as their rivals from the primæval forests of classics and mathematics, and (may we say?) to be finally of greater utility.

If Mr. im Thurn's book, as might be expected from the performance of so youthful an author, does not contain any addition to science, it will, of course, be interesting to Marlburians as the work of one who has just ceased from being a schoolboy; but its chief value lies in the fact of its indicating the presence of the promising germs we have mentioned above, of the excellent forcing pit found in the Marlborough College Natural History Society, and of the skilful gardener, Mr. T. A. Preston.

Gymnastics for Ladies. Madame Brenner.

ALTHOUGH many of our large towns are now provided with gymnasiums at which ladies' classes have been established, the subject is but little appreciated, especially, in some more important cases, among the ladies themselves. There can be no doubt that for growing girls a large airy room, provided with suitable apparatus, and where a loose easy dress is a necessary condition, must be advantageous, if the exercises performed are such as to induce emulation without over-exertion. When we consider at how much earlier an age "romping" is prohibited to girls than to boys, and how little there is in the routine of a girl's life to correspond to the cricket and rowing which form the best part of her brother's recreations, we think the fact offers a very probable explanation of the increasing languor and delicacy of the ladies of the period. Breadmaking and other manual duties are being superseded by reading and preparing for examinations, and we must, therefore, look to artificial means to preserve a just balance between mental and physical development.

Madame Brenner's book is little more than an advertisement of her class in Bruton Street, being a description of those exercises which she teaches, enlivened by rather severe criticisms of those which others teach. Still we hope her book will find many readers, as the graceful illustrations, the strains of lively music which we are told accompany every movement, and, above all, the repeated assurance that the ladies need do no more than they like, will all tend to persuade parents and daughters that gymnastics are very pleasant and desirable.

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* See Rep. Brit. Assoc. Dundee, p. xliv.

On Eozoön Canadense. By Professors King and Rowney. 8vo. (Dublin, 1870.)

THIS reprint from the Proceedings of the Royal Irish Academy, treats of a controverted subject of considerable interest to geologists and zoologists, namely, the nature of certain Canadian and other serpentinous limestones in which Logan, Dawson, Sterry Hunt, Carpenter, Jones, Gümbel, and others believe they find definite traces of a foraminifer known as *Eozoön*. Great difference of opinion on the subject under notice has been expressed during discussions before learned societies and in memoirs written by geologists, some seeing under the microscope good proofs of the presence of foraminiferal structure; and these observers are mainly rhizopodists well acquainted with the peculiar structures of shelled protozoa, others finding nothing but inorganic fibres, globules, flocculi, &c., of mineral matter in both the Canadian and any other similar serpentinous marbles. Among the latter disputants are Doctors King and Rowney; and in the paper before us there are some new descriptions and figures of specimens illustrative of the structure of certain ophitic rocks from different countries, and likely to be of use to "eozoönal" students, enlarging their field of observation, and aiding them, perhaps, in arriving at definite conclusions. The figures, however, are little better than diagrams, and cannot help the student much. The paper is largely composed of criticisms on the researches and remarks of others, in a highly disputatious form, and not enriched with anything new to those who have thoroughly studied the matter, either mineralogically or from a zoological point of view. The following important facts do not appear to be recognised by the authors: first, that ophites, on the one hand, may not be really "eozoönal" and yet have mineral structure resembling in one point or another what occurs in *Eozoön*; secondly, that true eozoönal rock is often so greatly crumpled up in its metamorphic state, that patches only of the organic structure are found here and there amongst the somewhat similar ophitic mass of granules and fibres.

Die Ophthalmologische Physik, und ihre Anwendung auf die Praxis. Von Dr. Hugo Gerold, of Giessen. Part II. (Vienna, 1870. London: Williams and Norgate.)

THE advances in the department of Ophthalmology have of late years been so rapid and important, that either thoroughly-revised editions of the standard works or altogether new books have become a sheer necessity. The volume before us comes under the latter category, and is the work of a gentleman well known as an able physicist. The present part is occupied with the Dioptrics of the Eye; the defects in it that are due to spherical and chromatic aberration; the terminology employed to indicate the different functional relations of the several parts to one another and to light, as æquatorial, median, and sagittal planes, axes, visual lines, field of vision, angle of elevation, &c.; the principles of perspective and of the construction of the microscope, the ophthalmoscopic investigation of the eye, and the adaptation of convex and concave lenses for hypermetropia or myopia, and lastly, a section on light and colour. The parts we have read appear to be clearly and intelligibly given, and with something like French method and order. The mathematical formulæ introduced are not beyond the comprehension of an ordinary well-instructed reader, and the diagrams are numerous (123 in number) and instructive.

H. P.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his Correspondents. No notice is taken of anonymous communications.*]

Prof. Pritchard and Mr. Proctor

IT has been pointed out to me that Prof. Pritchard, engaged as he is in many important avocations, may quite unwittingly have misjudged my treatise on the Plurality of Worlds. I readily (eagerly) admit this, and also that, in this case, I owe the esteemed Savilian professor an apology for suggesting that he has intentionally wronged me.

The matter is now reduced to a simple issue. I have submitted considerations which are sufficient to convince Prof. Pritchard that his critique is not just. If he withdraws his unfavourable comments, as resulting from accidental misconception, I shall be bound to apologise for too hastily charging him with deliberate unfairness. If he will not, I cannot truthfully withdraw my objections. I will not endure to be represented as speaking severely (and by inference unfairly) of men for whom I have (and have expressed) a most sincere and unqualified admiration—of such men, to wit, as the Herschels, Tyndall, Lassell, Balfour Stewart, and Sir W. Thomson.

RICHARD A. PROCTOR

Whence Come Meteorites?

I HAVE read, with great interest, in the number of June 2nd of your journal the article which Mr. N. S. Maskelyne has devoted to the examination of my theory on the Origin of Meteorites. I request permission to offer some observations on the criticisms of that learned mineralogist.

Although Mr. Maskelyne concludes by saying that, in his opinion, I have not attained the end which I had proposed to myself, I will attempt to show that my system has, in fact, perfectly resisted his attacks.

In truth, the views I have been led to take on the subject of meteorites are not by any means a simple fruit of my imagination. I have been led to them by the observations of material facts easy of verification; and it is only in the background, so to speak, that I have brought under consideration different consequences, which may certainly be matter for discussion. Now, in Mr. Maskelyne's argument, he has given the place of honour to these secondary considerations, whilst he has left the real substance of the question completely in the shade. A few lines will suffice to justify my assertion.

The chemical and mineralogical study of the specimens which compose the rich collections of meteorites at the Museum of the Jardin des Plantes has made me acquainted with *polygenic* masses—that is to say, masses formed of angular fragments soldered together, but possessing each one such decidedly separate characters that it is impossible to suppose that they were originally produced in the forms and in the relative positions which they present at the present day. These clastic meteorites had been previously studied; but not, as far as I am aware, from the point of view at which I have placed myself.

From the studies and experiments I have made on this subject results the indubitable fact that the fragments, the union of which constitutes various clastic meteorites are, each one, completely identical with well-known monogenic meteorites. It is thus, that the clastic meteorite of St. Mesmin (May 30, 1866) contains angular fragments rigorously the same in every respect as those which would be produced by breaking up the meteorite of Lucé (Sept. 30, 1768); fragments soldered together by a dark coloured cement exactly similar to the substance which forms the principal mass of the stone of Limerick (Sept. 30, 1813). It is thus also that in the same cement, the meteorite of Canellas (May 14, 1861), contains fragments of a rock impossible to distinguish from that of which the mass of Montrejeau (Dec. 9, 1858) is a specimen.

How is it possible to understand these positive facts without having recourse to the explanation, so evidently true of terrestrial fragments? For fragments of two distinct rocks to be found associated in one clastic mass, it is absolutely necessary that these two rocks should come from a region where they were in connection. Thus, on one hand, the rocks of Lucé and of Limerick were in connection; thus, on the other hand, the rocks of Montrejeau and Limerick were in connection; then, in conclusion, the rocks of Lucé and of Montrejeau were in connection.